

5(2)

05866

AUTHORS:

Mayorova, Ye.P., Fomin, V.V.

SOV/78-4-11-19/50

TITLE:

The Influence Exercised by Sulphate Ions on the Distribution Coefficient of Macroquantities of Thorium in the Extraction by Tributyl Phosphate

PERIODICAL:

Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 11, pp 2511-2514 (USSR)

ABSTRACT:

In previous papers (Refs 1-3) the authors calculated the stability constants of the ions  $\text{Th}(\text{NO}_3)_j^{4-j}$ ,  $\text{Th}(\text{SO}_4)_k^{4-2k}$  and  $\text{Th}(\text{NO}_3)_j \cdot (\text{SO}_4)_k^{4-j-2k}$  as well as the reaction constant for the formation of the compound  $\text{Th}(\text{NO}_3)_4 \cdot 2\text{TBPh}$  (TBPh = tributyl phosphate). These experiments were made with microquantities of thallium. The authors dealt with the problem as to whether the resultant constants held also for the extraction of weighable thorium quantities by means of TBPh from sulphate-nitrate solutions of an ionic strength of 1.7. The ionic strength was kept constant by corresponding additions of  $\text{NaClO}_4$ . The experimental and the calculated coefficients

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SOV/78-4-11-19/50

The Influence Exercised by Sulphate Ions on  
the Distribution Coefficient of Macroquantities of  
Thorium in the Extraction by Tributyl Phosphate

are compared in table 1. Herefrom it may be seen that a  
change in the composition of the solution does not affect  
the values of the constants at constant ionic strength. The  
coefficients obtained therefore hold also for weighable  
amounts of thorium. There are 1 table and 3 Soviet  
references.

SUBMITTED:

August 18, 1958

Card 2/2

FOMIN, V.V.; MAYOROVA, Ye.P.

Extraction of perchloric acid with tributyl phosphate. Zhur.  
neorg.khim. 5 no.5:1100-1106 My '60. (MIRA 13:7)  
(Perchloric acid) (Butyl phosphate)  
(Extraction(Chemistry))

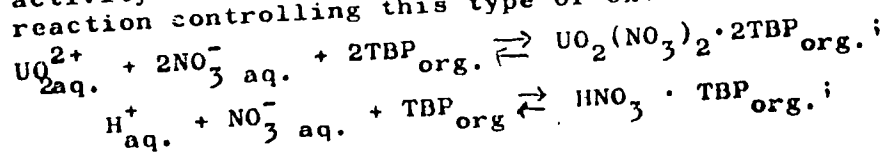
FOMIN, V.V.; KARTUSHOVA, R.Ye.; MAYOROVA, Ye.P.

Study of the extraction of nitric acid, perchloric acid, and uranyl  
nitrate with tributyl phosphate solutions, using the method of  
isomolar series. Zhur.neorg.khim. 5 no.6:1337-1344 Je '60.  
(Extraction (Chemistry)) (MIRA 13:7)  
(Butyl phosphate)

S/830/62/000/001/010/012  
E111/E592

AUTHORS: Fomin, V.V., Mayorova, Ye.P. and Kartushova, R.Ye.  
TITLE: Determination of the number of theoretical stages of  
an extraction column by an analytical method  
SOURCE: Ekstraktsiya; teoriya, primeniye, apparatura. Ed. by  
A.P. Zefirov and M. M. Senyavin. Moscow, Gosatomizdat,  
1962, 188-201

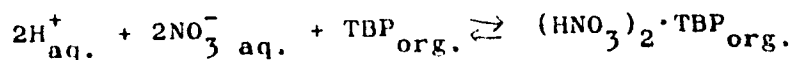
TEXT: An analytical method of calculating extraction for  
two macro-components present simultaneously is developed and  
exemplified by the extraction of uranyl nitrate and nitric acid  
with tributyl phosphate (TBP). The mass balance equations for  
uranium and nitric acid for each  $n^{\text{th}}$  stage of the extraction  
column are formulated, together with all the equilibrium constants,  
activity coefficients and dissociation constant of the fundamental  
reaction controlling this type of extraction, viz:



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Determination of the number of ...

S/830/62/000/001/010/012  
E111/E592



The main difficulty in calculating the number of theoretical stages lies in the reaction forming solvates of nitric acid and uranyl nitrate with TBP. Because of the large errors involved, the constants for the acid were assumed to remain unchanged. Calculated values were found to be in good agreement with experimental results, viz. for initial uranium and acid concentrations of 1.26 and 2 M, respectively. An appendix is included giving a working example for calculating a theoretical stage. There are 6 figures and 6 tables.

Card 2/2

FOMIN, V.V.; KARTUSHOVA, R.Ye.; MAYOROVA, Ye.P.

Extraction of uranium by mixtures of tributyl phosphate and  
diisoamyl ester of methylphosphonic acid. Ekstr.; teor., prim., app.  
no. 2:37-46 '62. (MIRA 15:9)  
(Uranium) (Butyl phosphate) (Phosphonic acid)

BLONKIVIST, Mariya Semenovna; MAYOROVA, Yevdokiya Timofeyevna; BREZANOVSKAYA,  
L.Ya., redaktor; YUSFINA, N.L., tekhnicheskij redaktor

[Increase the amount of animal products by every means] Vsemerno  
povyshat' proizvodstvo produktov zhivotnovodstva. Moskva, Gos. izd-vo  
kul'turno-prosvetit. lit-ry, 1956. 58 p. (Bibliotekha v pomoshch'  
lektoru, no.24) (MLRA 9:12)  
(Animal products)



DOBROKHOTOV, G.N.; MAYOROVA, Ye.V.

Kinetics of autoclave leaching of cobalt matte and considerations  
on the choice of a type of autoclave. TSvet. met. 36 no.8:31-37  
Ag '63. (MIRA 16:9)  
(Cobalt—Metallurgy) (Leaching) (Autoclaves)

DOBROKHOTOV, G.N.; MAYOROVA, Ye.V.

Kinetics of the autoclave lixiviation of white copper matte.  
Zhur. prikl. khim. 36 no.10:2148-2154 0 '63.

(MIRA 17:1)

1. Proyeektnyy i nauchno-issledovatel'skiy institut nikel'-  
kobal'tovoy i olovyanoy promyshlennosti.

DOBROKHOTOV, G.N.; MAYOROVA, Ye.V.

Kinetics of autoclave leaching of nickel matte. Izv. vys. ucheb.  
zav.; tsvet. met. 8 no.1:64-72 '65. (MIRA 18:6)

1. Nauchno-issledovatel'skiy i proyektnyy institut "Gipronikel".

L 55047-65 EWT(m)/EPF(c)/EPR/ENP(j)/I PC-4/Pr-4/Ps-4 RPL WW/RM

ACCESSION NR: AP5011989

UR/0374/65/000/001/0065/0075  
678:539.4.01

AUTHORS: Aynbinder, S. B. (Riga); Laka, M. G. (Riga); Mayors, I. Yu. (Riga) 37  
36  
B

TITLE: Effect of hydrostatic pressure upon the mechanical properties of polymer materials

SOURCE: Mekhanika polimerov, no. 1, 1965, 65-75

TOPIC TAGS: hydrostatic pressure, polymer, tensile strength, modulus of elasticity 15

ABSTRACT: The effect of hydrostatic pressure on the tensile strength of polymers: thylmethacrylate, vinyl plastics, polystyrene, polycaprolactam, teflon, poly-  
The experi-

A WHICH BRACKET PRESSURE DEPENDENCE FOR ELASTIC PROPERTIES FROM THE SUPER-ELASTICITY

Card 1/4

L 55047-65

ACCESSION NR: AP5011989

data it is concluded that the increase in Young's modulus with increase in pressure is due to two reasons: decrease in the specific volume and finiteness of deformation. For thermosetting plastics, the initial rapid increase in Young's

CRYSTALLINE AND AMORPHOUS POLYMERS,  $E$  MAY BE CALCULATED WITH SUFFICIENT ACCURACY  
for practical purposes by the expression

$$\frac{\Delta E}{E_0} = \frac{\sigma_g}{E_0} f(\nu)$$

$$E = E_0 \left( 1 + \frac{\sigma_g}{E_0} f(\nu) \right),$$

where  $E_0$  is the initial value of Young's modulus,  $g$  is the hydrostatic pressure in  $\text{kg/cm}^2$ , and  $f(\nu)$  is an empirical function of Poisson's coefficient  $\nu$ . For the high elasticity region, the elastic limit for these types of polymer may be calculated by

$$\sigma_s = \sigma_0 \left[ 1 + C \frac{\sigma_g}{E_0} \right],$$

where  $\sigma_s$  is the elastic limit at the hydrostatic pressure  $\sigma_g$ ,  $\sigma_0$  the initial elastic limit,  $E_0$  initial value of Young's modulus and  $C$  an experimental constant.

Card 2/4

L 55047-65

ACCESSION NR: AP5011989

Orig. art. has: 2 tables, 9 graphs, and 7 equations.

ASSOCIATION: none

SUBMITTED: 02Sep64

ENCL: 01

SUB CODE: MT, ME

NO REF SOV: 006

OTHER: 001

Card 3/4

L 55047-65

ACCESSION NR: AP5011989

ENCLOSURE: 01

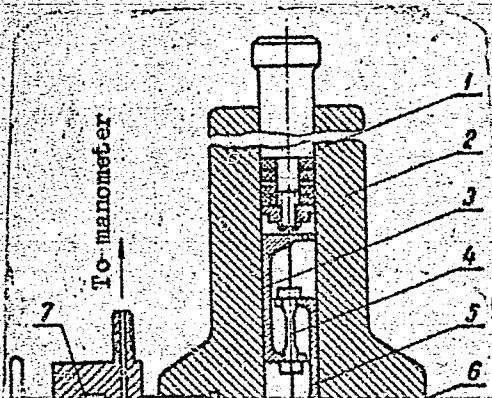
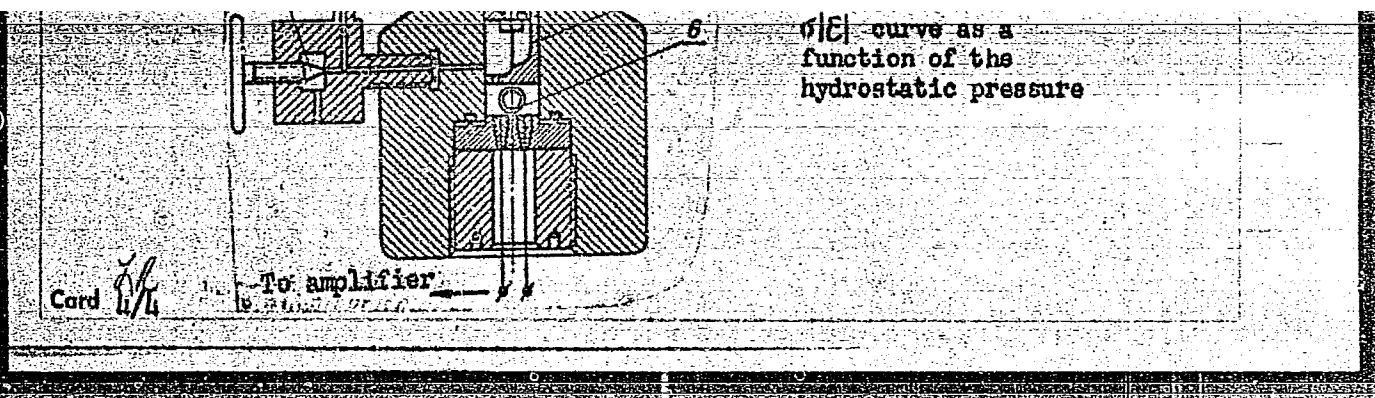


Fig. 1. Schematic of the high pressure chamber used in the determination of the  $\sigma|E|$  curve as a function of the





BUZIN, D.P., inzh.; BENENSON, Ye.I., inzh. GOL'DBERG, I.I., inzh.; MAYORSKIY,  
Ye.V., inzh.; TROYANOVSKIY, B.M., kand. tekhn. nauk, dotsent

Experience in designing the terminal stage of a large steam turbine.  
Energomashinostroenie 10 no.8:1-3 Ag '64. (MIRA 17:11)

S/194/61/000/010/069/082  
D271/D301

AUTHORS: Shteyn, N.I. and Mayorova, Z.P.

TITLE: Experimental investigation of a two-frequency single-tube oscillator with two degrees of freedom

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 10, 1961, 2, abstract 10 K4 (Tr. n.-i. in-ta gidrometeorol. priborostr., 1960, no. 9, 115-118)

TEXT: Results are described of an experimental investigation of a VHF transmitter for radiosondes; the purpose of the investigation was to determine electrical parameters of the system which are necessary to ensure its normal operation, and the clarification of the relation between experimental and analytical data (Tr. n.-i. in-ta gidrometeorol. priborostr., 1960, no. 9, 107-114). It was found that differences between theory and experiment did not exceed 20-30%. [Abstracter's note: Complete translation] ✓

Card 1/1

BELETSKIY, G.N.; KONSTANTINOV, G.F.; MAYOROVA, Z.S.; MAYEVSKIY, V.I.; MAYSTRAKH,  
K.V.; ROSTOTSKIY, I.B. (Moskva).

Basis of Soviet socialistic public health. Sov. zdrav. 18 no.3:  
22-28 '59. (MIRA 12:3)

(PUBLIC HEALTH  
in Russia (Rus))

MAYOROVA, Z.S.

(Moskva)

Participation of the Red Cross organization in medical  
service for patients. Sovet. zdravookhr. 12 no.1:41-44 '63  
(MIRA 17:2)

1. Zamestitel' predsedatel'na spolnitel'nogo komiteta Soyuz  
obshchestv Krasnogo Krest' i Krasnogo Polumesyatsa SSSR.

SHKOIYAR, L.F.; MAMONTOV, N.V.; GOL'DEVICH, A.A.; MAYOROVA, Z.V.; KOSTROMINA, N.V.; KUTYAVINA, V.M.; ROMALIS, F.I.; KAPLINSKAYA, L.G., red.; DROZHZHINA, L.P., tekhn. red.

[Transactions of the Soviet Antarctic Expedition] Trudy Sovetskoi antarkticheskoi ekspeditsii, 1955. Leningrad, Izd-vo "Morskoi transport." Vol.23. [Second Continental Expedition, 1956-1958; observational data] Vtoraya kontinental'naya ekspeditsiya, 1956-1958 gg.; materialy nabliudenii. Pod red. L.V.Dolganova. 1961. 277 p.  
(MIRA 14:11)

1. Sovetskaya antarkticheskaya ekspeditsiya, 1955. 2. Glavnaya geofizicheskaya observatoriya im. A.I.Voyeykova (for all except Kaplinskaya, Drozhzhina).

(Antarctic regions—Solar radiation)

L 24826-65 EPA(s)-2/EWT(m)/EPF(c)/EPR/EWF(j)/T Pc-Li/Pr-Li/Ps-Li/Pt-10 AFWL  
RM/WW  
ACCESSION NR: AP5001979 S/0020/64/159/006/1244/1246<sup>43</sup>  
AUTHOR: Aynbinder, S. B.; Laka, M. G.; Mayors, I. Yu. <sup>42</sup>  
TITLE: Effect of hydrostatic pressure on the deformation resistance  
and strength of polymers <sup>15</sup>  
SOURCE: AN SSSR. Doklady, v. 159, no. 6, 1964, 1244-1246  
TOPIC TAGS: polymer strength, polymer property, hydrostatic pressure  
ABSTRACT: The effect of hydrostatic pressure on properties of poly-  
mers such as poly(vinyl chloride), <sup>15</sup>plexiglass, <sup>15</sup>amino resin, <sup>15</sup>and  
ebonite <sup>15</sup>has been studied. Compression and tensile tests at atmos-

under atmospheric pressure to 554 under a pressure of 2000 kg/cm<sup>2</sup>.

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L 24826-65

ACCESSION NR: A5001979

In certain cases the hydrostatic pressure changes the character of fracture. In tensile tests, plexiglass and ebonite failed in a brittle manner at both atmospheric and 2000 kg/cm<sup>2</sup> pressure. However, in the first case the fracture surface was much smoother than in the second case.



manner at both atmospheric and 2000 kg/cm<sup>2</sup> pressure. However, in the first case the fracture surface was rough and in the second, smooth and perpendicular to the specimen axis. The hardness dropped as a result of deformation regardless of pressure. The ratio of hydrostatic pressure to the Young's modulus was 0.12 for poly(vinyl chloride), 0.097 for plexiglass, 0.116 for ebonite, and 0.05 for amino resin generally higher than that for metals, 0.05 max. Thus the strength potentials of polymers appear to be higher than those of metals. Orig. art. has: 3 figures and 1 table.

ASSOCIATION: Institut mekhaniki polimerov AN LatvSSR (Institute of Polymer Mechanics, AN LatvSSR)

SUBMITTED: 26May64      ENCL: 00      SUB CODE: OG, MT  
NO REF SOV: 003      OTHER: 002      ATD PRESS: 3167

Card 2/2

MAYORSKAYA, N.

CHAYKIN, F. • ~~MAYORSKAYA, N.~~

Wage system for maintenance mechanics. Sots. trud no.7:83-88 J1 '57.  
(Wages) (Machinists)

MAYORSKAYA, N., aspirant; CHAYKIN, F.

Combining machine work and machine adjustment. Sots.trud 4  
no.5:116-118 My '59. (MIRA 12:8)

1. Ekonomicheskiy fakul'tet Moskovskogo gosudarstvennogo  
universiteta im. Lomonosova (for Mayorskaya). 2. Zamestitel' glav-  
nogo bukhgaltera Pervogo gosudarstvennogo podshipnikovogo zavoda  
(for Chaykin).

(Moscow--Bearing industry--Labor productivity)

MAYORSKIKH, Georgiy Ivanovich; TYLIKIN, M.N., red.; PULIN, O.I., tekhn.  
red.

[A house made of local materials; advice to individual home  
builders] Dom iz mestnykh materialov; sovety individual'nykh  
zastroishchikam. Tula, Tul'skoe knizhnoe izd-vo, 1960. 174 p.  
(MIRA 14:5)

(Architecture, Domestic)

MAYORSKIY, G.

For further qualitative improvement of transportation. Rech.  
transp. 24 no.3:9-10 '65. (MIRA 18:5)

1. Nachal'nik Upravleniya gruzovoy i kommercheskey raboty  
Ministerstva rechnogo flota.

MAYORSKIY, G.

New rates in river transportation. Rech. transp. 23 no.1:  
9-10 Ja '64. (MIRA 18:11)

1. Nachal'nik Upravleniya gruzovoy i kommercheskoy raboty  
Ministerstva rechnogo flota RSFSR.

MAYORSKIY, G.

Adopting new freight traffic is an most important economic objective .  
Rech. transp. 22 no.3:7-9 Mr '63. (MIRA 16:4)

1. Nachal'nik Upravleniya gruzovoy i kommercheskoy raboty Ministerstva  
rechnogo flota.

(Inland water transportation)

MAYORSKIY, G.

For a further improvement in the quality of cargo handling and  
commercial operations. Rech. transp. 20 no.8:8-9 Ag '61.  
(MIRA 14:10)

1. Nachal'nik upravleniya gruzovoy i kommercheskoy raboty  
Ministerstva rechnogo flota.  
(Inland water transportation)



TUBEROZOV, Nikolay Ivanovich; SHIPILIN, Nikolay Nikolayevich;  
MAYORSKIY, G.I., retsenzent; VAYNSHTOK, M.Z., retsenzent;  
~~PLATOV~~, V.G., red.; MAKRUISHINA, A.N., red.izd-va; BOBROVA,  
V.A., tekhn.red.

[Guide for users of inland water transportation] V pomoshch'  
klienture vnutrennego vodnogo transporta. Moskva, izd-vo  
"Rechnoi transport," 1959. 446 p. (MIRA 13:1)  
(Inland water transportation)

MAYORSKIY, Gennadiy Ivanovich; RODINA, Antonina Platonovna; PROTASOV,  
V.S., retsenzent; ZOTOVA, V.V., retsenzent; MAKRUSHINA, A.N.,  
red.izd-va; BOBROVA, V.A., tekhn.red.

[Inland water transportation rates] Tarify rechnogo transporta.  
Moskva, Izd-vo "Rechnoi transport," 1959. 150 p. (MIRA 13:3)  
(Inland water transportation--Rates)

MAYORSKIY, G.I.

New freight rates for river transportation. Rech. transp. 16 no. 1: 14-  
18 Ja '57. (MIRA 10:3)

(Inland water transportation--Rates)

*MAYORSKIY, G.I.*  
KRAYEV, Ivan Stepanovich; SIONOV, M.N., retsenzent; MAYORSKIY, G.I.,  
retsenzent; ZAVITAYEV, Ye.P., red.; MAKRUSHINA, A.N., red.izd-va;  
SALAZKOV, N.P., tekhn.red.

[Principles of the commercial exploitation of river transportation  
and the organization of freight operations] Osnovy kommercheskoi  
ekspluatatsii rechnogo transporta i organizatsii gruzovykh rabot.  
Moskva, Izd-vo "Rechnoi transport," 1957. 322 p. (MIRA 11:6)  
(Inland water transportation)

MAYORSKIY, G.I.

Raise the level of economic planning and management in river  
transportation. Rech. transp. 15 no.9:10-14 8 '56. (MLRA 10:2)

(Shipping--Finance)  
(Inland water transportation)

MAYORSKIY, G.I.

New Code of Inland Water Transportaion of the U.S.S.R. Rech.transp.  
15 no.1:7-10 Ja '56. (MLRA 9:5)  
(Inland water transportation--Law and legislation)

MAYORSKIY, G., inzhener.

Increasing the speed of travel and accelerate the delivery of freight.  
Rech.transp. 14 no.1:5-8 Ja '55. (MIRA 8:4)  
(Shipping)

AMITAN, V.N., inzh.; GLINSKIY, A.K., inzh.; MAYORSKIY, S.A., inzh.

Combined system of continuous production planning in piece  
and small-lot production. Mashinostroenie no.4:14-19 J1-Ag '64.  
(MIRA 17:10)



L 10648-65 EWT(m)/EWP(w)/EWP(f)/EWP(v)/T-2/EWP(k)/ETC(m) NM/EM

ACC NR: AP5028748

SOURCE CODE: UR/0096/65/000/012/0069/0072

AUTHOR: Mayorskiy, Ye. V. (Engineer, Dissertant); Troyanovskiy, B. M. (Candidate of technical sciences) 44, 55

ORG: Moscow Power Institute (Moskovskiy energeticheskiy institut) 44, 55 68 B

TITLE: Experimental investigation of a supersonic flow in turbine cascades 23, 44, 55

SOURCE: Toploenergetika, no. 12, 1965

TOPIC TAGS: turbine cascade, turbine blade, supersonic flow

ABSTRACT: The article presents results of an experimental investigation of turbine cascades with straight or slightly curved blades at small effective exit angles ( $\leq 16^\circ$ ) and at supersonic velocities. The experiments were conducted using the Moscow Power Institute wind tunnel with a closed test section 70 mm high and using pure air at initial temperatures of 120—180C. The investigated nozzle cascades had blades with a chord  $b \approx 70$  mm and  $\bar{t} = t/b = 0.55$ . Based on the analysis of static pressure distribution along the blade and visual observation of the flow in the boundary layer, curves of the shock formation were obtained. At subsonic flow regimes, a laminal boundary layer was observed along the concave portion and the back of the blade. In the region of positive pressure gradient, a transition from laminal to turbulent flow takes place. The tests conducted with blade cascades having a discontinuity in the profile showed reduced losses over a wide range of Mach numbers. Orig. art. has: 7 figures. [AV]

Card 1/1

UDC: 621.165.533.6.001.5

L 10648-66

ACC NR: AP5028748

SUB CODE: 10 SUBM DATE: none/ ORIG REF: 003/ ATD PRESS: 4169

HW

Card 2/2

SAMOYLOVICH, G.S., kand.tekhn.nauk; MAYORSKIY, Ye.V., inzh.; NERUDA, I.,  
inzh.; STEKOL'SHCHIKOV, Ye.V., inzh.

Low-inertia tensiometric testing devices for the investigation  
of unsteady processes in turbines [with summary in English].  
Teploenergetika 6 no.1:59-62 Ja '59. (MIRA 12:1)

1. Moskovskiy energeticheskiy institut.  
(Turbines--Testing)

TROYANOVSKIY, B.M., kand.tekhn.nauk, dotsent; MAYORSKIY, Ye.V., inzh.

Study of the lattices of the working blades of terminal steam turbine stages. Izv.vys.ucheb.zav.; energ. 5 no.5:71-75 My '62.  
(MIRA 15:5)

1. Moskovskiy ordena Lenina energeticheskoy institut. Predstavlena kafedroy parovykh i gazovykh turbin.  
(Steam turbines)

TROYANOVSKIY, B.M.; MAYORSKIY, Ye.V.

Effect of Reynold's criterion on the characteristics of supersonic  
lattices. Trudy MEI no.47:49-54 '63. (MIRA 17:1)

TROYANOVSKIY, B.M., kand.tekhn.nauk, dotsent; MAYORSKIY, Ye.V.

Study of the nozzle cascades of the terminal stages of steam  
turbines. Izv. vys. ucheb. zav.; energ. 6 no.10:55-61 0 '63.  
(MIRA 16:12)

1. Moskovskiy ordena Lenina energeticheskiy institut. Predstavlena  
kafedroy parovykh i gazovykh turbin.

TROYANOVSKIY, B.M., kand.tekhn.nauk, dotsent; MAYORSKIY, Ye.V., inzh.

Study of turbine cascades in a steampipe. Energomashinostroenie 9  
no.6:39-40 Je '63. (MIRA 16:9)

DEYCH, M.Ye., doktor tekhn. nauk, prof.; STEPANCHUK, V.F., kand. tekhn. nauk, dotsent; MAYORSKIY, Ye.V., inzh.; SALTANOV, G.A., inzh.

Use of an optical method in studying the flow of wet steam.

Izv. vys. ucheb. zav.; energ. 8 no.11:87-91 N '65.

(MIRA 18:11)

1. Moskovskiy ordena Lenina energeticheskiy institut.



MAYOWA, Irena

Chediak-Higashi syndrome with report of a case. Polski tygod.  
lek. 16 no.41:1576-1579 9 0 '61.

1. Z laboratorium Miejskiego Szpitala Dziecięcego Nr 1 w Warszawie;  
kierownik: dr med. Irena Mayowa.  
(ALBINISM) (LEUKOCYTES abnorm)

GEDEVANISHVILI, G.K. [deceased]; MAYPARIANI, V.G.

Effect of the tail end specific pressure on metal deformation  
in section grooves. Trudy Inst.met. AN Gruz.SSR 9:159-167  
'58. (MIRA 12:8)  
(Rolling (Metalwork)) (Deformations (Mechanics))

GEDEVANISHVILI, G.K., MAYPARIANI, V.P.

Effect of the speed of rolling on metal deformation in shaped  
grooves. Trudy Inst. met. i gor. dela AN Gruz. SSR no. 8:97-107  
'57. (MIRA 11:8)

(Rolling(Metalwork))  
(Deformations(Mechanics))

VLCEK, Miroslav, inz. arch.; MAYR, Jaroslav, inz. arch.

Disposition and operation of airport buildings. Letecký obzor  
8 no. 9:260-264 S '64.

1957, Rev. 1, NUDr.

1957, discharge of tuberculous patient from hospital  
zdravot. 5 no.7:404-407 July 57.

1. Medical history tuberculosis v. J. a. v.  
1957, therapy  
1957, therapy

MAYR, E.

The development of osteoarthritic tuberculosis in Czechoslovakia during 1948 and 1963. Acta chir. orthop. traumat. Sect. 30: 97-100 Apr 65.

1. Lecelná tuberkulózy v Janově, (reditel: MUDr. O. Hula).

MAYRANOVSKIY, S.G.; MAYRANOVSKAYA, E.F.

Nature of the polarographic wave branching of a protein in cobalt salt solutions. Izv. AN SSSR. Otd. khim. nauk no. 5:922-924, May '61.  
(MIRA 14:5)

1. Institut organicheskoy khimii im. N.D. Zelinskogo AN SSSR i Gosudarstvennyy onkologicheskiy institut im. Gertsena Ministerstva zdavookhraneniya RSFSR.  
(Proteins) (Polarography)

MAYRANOVSKIY, S.G.; MAYRANOVSKAYA, E.F.

Comparison of the heights of polarographic catalytic waves of hydrogen obtained in solutions of proteins with different dropping electrodes; effect of stirring under conditions of the maximum of the second kind. Izv. AN SSSR Otd. khim. nauk no. 5: 937-939 My '63. (MIRA 16:8)

1. Institut organicheskoy khimii im. N.D. Zelinskogo AN SSSR i Gosudarstvennyy onkologicheskiy institut im. P.A. Gertsena.  
(Proteins) (Polarography) (Catalysis)



MAYRANOVSKAYA, E.F.; GORODILOVA, V.V.

Comparative examination of the blood serum in lung cancer by  
polarographic and immunological methods. Vop. onk. 9 no.9:  
14-18 '63. (MIRA 17:9)

1. Iz virusologicheskoy laboratorii (zav.- prof. V.V. Gorodilova)  
Gosudarstvennogo onkologicheskogo instituta imeni Gertsena (dir.-  
prof. A.N. Novikov). Adres avtorov: Moskva, D-284, 2-y Botkinskiy  
proyezd, 3, Gosudarstvennyy onkologicheskiy institut imeni Gertsena.

THE NATIONAL BUREAU OF INVESTIGATION

WASHINGTON, D. C. 20535  
FEDERAL BUREAU OF INVESTIGATION  
U. S. DEPARTMENT OF JUSTICE

INVESTIGATION OF THE ACTS OF VIOLENCE  
COMMITTED BY THE ORGANIZATION OF  
THE BLACK PANTHER PARTY

MAYRANOVSKAYA, E.F.; MAMONTOV A.S.; GORODILOVA, V.V.

Polarographic studies in the diagnosis of lung cancer. Vop.  
onk. 10 no.3:66-67, 1961. (MIRA 1968)

1. Iz virusologicheskoy laboratorii (zav. - prof. V.V.  
Gorodilova) i khirurgicheskogo otdeleniya (zav. - doktor med.  
nauk M.D. Garin) Gosudarstvennogo onkologicheskogo instituta  
imeni Gertsena (dir. - prof. A.N. Novikov). Adres avtorov:  
Moskva, D-284, 2-y Botkinskiy pryezd; 3. Gosudarstvennyy  
onkologicheskii institut imeni Gertsena.

LA MAYRANOVSKIY, J. G.

2

Polarographic reduction of sulfonyl chlorides. S. G. Mal'yanovskii and M. B. Nelman (Inst. Chem. Phys., Acad. Sci. U.S.S.R., Moscow). *Doklady Akad. Nauk S.S.S.R.* 79, 85-8 (1951).—Polarograms in soln. in 60% iso-PrOH on a background of 0.1 N  $\text{PhSO}_2\text{H}$  gave the half-wave potentials (against satd. calomel)  $\text{MeSO}_2\text{Cl}$   $-0.62$ ,  $\text{PhSO}_2\text{Cl}$   $-0.20$ ,  $p\text{-MeOCONHC}_6\text{H}_4\text{SO}_2\text{Cl}$   $-0.03$ ,  $p\text{-ClC}_6\text{H}_4\text{SO}_2\text{Cl}$   $+0.05$  v., unaffected by the pH between 1 and 9. Suppression of the max. requires 0.1% gelatin. The no. of electrons involved in the reduction is 2. Consequently, the reduction is represented by  $\text{RSO}_2\text{Cl} + 2e^- \rightarrow \text{RS}^-\text{O}_2 + \text{Cl}^-$ ; formation of  $\text{Cl}^-$  ions in the course of the electrolytic reduction of  $\text{PhSO}_2\text{Cl}$ , and paralleling it, was demonstrated directly. This scheme accounts for the independence of the reduction potential of the pH. Polarographic reduction of  $\text{PhSO}_2\text{H}$  (product of the reduction of  $\text{PhSO}_2\text{Cl}$ ) gave a half-wave only at  $-1.65$  v., identical with the II wave of other acids; the anion  $\text{PhSO}_2^-$  is not reduced down to  $-2.4$  v. The reduction of  $\text{PhSO}_2\text{Cl}$  to  $\text{PhSO}_2\text{H}$  confirms the structure of the latter with respect to direct bonding of H to S. The rate of hydrolysis of the sulfochlorides is of the 1st order, independent of the pH between 1 and 9; above pH = 9, the rate increases sharply. At  $25^\circ$ , at pH = 2, the 1st-order rate consts. for the hydrolysis are, for  $\text{MeSO}_2\text{Cl}$ ,  $10^4 = 0.24$ , and for  $\text{PhSO}_2\text{Cl}$ ,  $10^4 = 3.0$  sec. $^{-1}$ . The rate of hydrolysis is slower with  $\text{RSO}_2\text{Cl}$  reduced at lower potentials. The reduction potential is more pos. with a more neg. R. N. Thon

**THEORY OF THE LIMITING CURRENTS DURING REDUC-  
TION OF HYDROGEN IONS IN SOLUTIONS OF WEAK  
ACIDS.** S. O. Mayranovskii [Mayranovskiy] and M. B.  
Neyman. Translated from Doklady Akad. Nauk S.S.S.R. 22,  
93-6 (1952). Sp. (AEC-tr-1891)

The theory of limiting currents was applied to the analysis  
of hydrogen ion reduction waves of weak acids. The equa-  
tion for the limiting current is derived. To confirm the  
equation, the behavior of oxalic, chloroposic, hydrochloric,  
salicylic, acetic, benzoic, and phenylacetic acids were  
investigated with the Hg drop electrode. Experimental  
values of limiting current are in good agreement with the  
theoretical values and the limiting current is not propor-

"APPROVED FOR RELEASE: 06/14/2000

CIA-RDP86-00513R001033110014-7

theoretical values, and the limiting current is not propor-  
tional to the acid concentration. (J.S.R.)

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CIA-RDP86-00513R001033110014-7"

MAYRANOVSKIY, S. G.

Chem ②

British Abst.

A I

Aug. 1953

Electrochemical  
Equilibria  
and KineticsPolarographic reduction of sulphones and sulphonates. S. G.Mairanovskii and M. B. Heiman (C.R. Acad. Sci., U.R.S.S., 1952,  
87, 805-808).—Polarographic reduction of six sulphones three

sulphonates, a sulfoxide, and a sulphide was studied at 25°. In the case of sulphones containing an aryl radical two steps on the current-voltage curve are observed, the first due to reduction of the sulphone to the corresponding sulphide and the second to the discharge of a sulphonium ion resulting from the hydrolysis of sulphide. This second process is followed by regeneration of the sulphide and formation of H<sub>2</sub>. Appearance of a third step in the case of chlorine-substituted aryl sulphones is caused by a cathode process in which Cl atoms are exchanged for H atoms. The polarograms of sulphonates show one step, the height of which corresponds to reduction involving two electrons. The products of reduction are mainly sulphinic acids which were not further reduced.

S. K. Lachowicz.

MF  
9-14-54

Inst. Chem. Physics, AS USSR

MAYRANOVSKIY, S. G.

USSR/Chemistry - Catalysis, Polarography  
Jul/Aug 53

"Limiting Currents in the Catalytic Discharge of Hydrogen Under the Action of Amines. I. Theory of the Limiting Catalytic Currents in the Discharge of Hydrogen," S. G. Mayranovskiy, Inst of Chem Phys, Acad Sci USSR

Iz Ak Nauk SSSR OKhN, No 4, pp 615-622

Gives a kinetic interpretation of phenomena observed in the catalytic discharge of hydrogen. Formulated relationships which establish a connection between the magnitude of the limiting catalytic current and the concns of the components of the soln. 27016



*MAYRANOVSKIY, S.G.*

USSR/Chemistry - Chemical Physics

Card 1/1 : Pub. 40 - 6/22

Authors : Mayranovskiy, S. G.

Title : About the terminal currents during catalytic hydrogen discharge under the effect of amines. Part 2.- Catalytic reaction of quinine.

Periodical : Izv. AN SSSR. Otd. khim. nauk 5, 805-813, Sep-Oct 1953

Abstract : The catalytic reaction of quinine, in the presence of hydrochloric acid as a proton donor, was investigated. Quinine appears to be one of the most active catalysts capable of reducing the H-overtension. Hydrochloric acid is considered to be one of the proton donors, the concentration of which can easily be subjected to calculation. Equations for the calculation of such concentrations are included. The value of the constant of the rate of H-molecule formation from quinine-H-atom complexes, is analyzed. Nine references: 5-USSR; 2-German; 1-USA and 1-Czech (1931-1953). Tables. graphs.

Institution : Academy of Sciences USSR, Institute of Chemical Physics

Submitted : October 30, 1952

MAYRANOVSKIY, S.G.; NEYMAN, M.B.

Equation for the diffusional current with calculation of the screening effect for a part of the dropping-electrode surface.

Izv.AN SSSR. Otd.khim.nauk. no.3:420-424 My-Je '55.

(MIRA 8:9)

1. Institut khimicheskoy fiziki Akademii nauk SSSR  
(Electrodes, Dropping mercury) (Diffusion)

10/20/50  
7  
p-Acetylamidoacetophenone. P. A. Gerasimov, S. G.  
Maksimovskii, and A. P. Yarovoi. U.S.S.R. 102,448, Rier.  
25, 1950. Dry AcNHPh and anhyd.  $AlCl_3$  treated with  
AcCl with const. cooling and stirring gives p-AcC<sub>6</sub>H<sub>4</sub>NHAc.  
M. Hersh

4  
1-4E49  
1-4E30

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CIA-RDP86-00513R001033110014-7



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CIA-RDP86-00513R001033110014-7"

MAYRANOVSKIY, S. G.

7  
3  
M. G. Mayranskiy and E. E.  
Kiselev. U.S.S.R. Pat. No. 1,400,000. The compd.  
is obtained by dissolving Al catalytically in anhyd. EtOH.  
As catalyst is used hydrogen chloride or anhyd. aluminum chloride.  
M. G. Mayranskiy

AUTHOR  
TITLE

MAYRANOVSKIY, S.G.

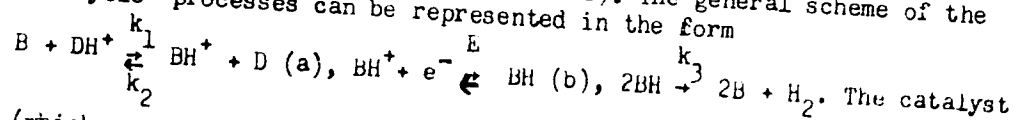
20-114-6-37/54

PERIODICAL

On the Nature of the Catalytic Currents of Hydrogen in Polarography  
(O prirode kataliticheskikh tokov vodoroda v polyarografii.)  
Doklady Akademii Nauk SSSR, 1957, Vol 114, Nr 6, pp 1272 - 1275 (U.S.S.R.)

ABSTRACT

The discharge of the pyridine-ion which determines the catalytic wave apparently takes place according to the same mechanism as the discharge of the N-substituted quaternary pyridine salts. This discharge then re-presents an inversible electrochemical process with subsequent rapid dimerization of the electrode products which, in contrast to the N-substituted salts, however, leads to the separation of H<sub>2</sub> and to the re-generation of pyridine. The present paper proves the correctness of this assumption and estimates for a certain case the constants of the reaction speed (which determine the catalytic wave). The general scheme of the catalytic processes can be represented in the form



(which may exist in acid(BH<sup>+</sup>) and basic (B) form) reversibly discharges itself in the acid cationic form BH<sup>+</sup> on the cathode and yields BH-radicals. These radicals rapidly dissociate on that occasion they regenerate the catalyst in the basic form B and yield a hydrogen molecule.

Card 1/2

20-111-6-37/54

On the Nature of the Catalytic Currents of Hydrogen in Polarography

Then the basic form reacts with the proton donor  $DH^+$  that lies on the electrode and is converted into the acid form; then the whole cycle is repeated. The equations for the balance of the participating substances are given. When the speed of the catalytic process is sufficiently great and  $[BH^+]_0$  ( $[BH^+]_0 \ll [B]$ ) are low, the flux is mainly determined by the speed of the catalytic process. The following special cases are somewhat more thoroughly investigated here: 1.) the speed of the inverse reaction ( $k_2$ ) is sufficiently high. 2.) the speed of the inverse reaction is low. For checking the here derived relations those of pyridine in a 0,1 M - solution of boron and boron buffer compounds were investigated. Another confirmation of the electrode process is discussed. In the non buffer solutions the reversibility of the electrode process is conserved. (3 illustrations).

ASSOCIATION

Institute for Organic Chemistry "N.D.Zelinskiy" of the Academy of Science of the U.S.S.R. (Institut organicheskoy khimii im. N.D. Zelinskogo Akademii nauk SSSR)

PRESENTED

January 7, 1957 by A. N. Frumkin, Academician

SUBMITTED

January 5, 1957

Card 2/2

5(3)

SOV/62-58-12-15/22

AUTHORS:

Belikov, V. M., Mayranovskiy, S. G., Safonova, E. N., Novikov, S. S.

TITLE:

Heat of Hydration of 2-Nitro-Pyrrole (Teplota gidratatsii 2-nitropirrola)

PERIODICAL:

Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1958, Nr 12, pp 1488-1489 (USSR)

ABSTRACT:

In the present paper the authors mention briefly that the hydration of 2-nitro-pyrrole was immediately proved by measuring the heat effect. It was found that in the transition from glacial acetic acid solutions to diluted acetic acid solutions the displacement of the absorption spectrum taking place in the ultraviolet 2-nitro-pyrrole spectrum is connected with the hydration of molecules of the dissolved substance. It is accompanied by a heat effect of -1.5 to -1.7 kcal/mol. In the course of the investigation the mixing heat of acetic acid with water at 21-22° and at a concentration of 25-35% was measured. This heat is equal to zero if the content of acetic acid is 28% of the final mixture. There are 1 figure, 1 table, and 4 references, 2 of which are Soviet.

Card 1/2



SOV/62-58-12-15/22

Heat of Hydration of 2-Nitro-Pyrrole

ASSOCIATION: Institut organicheskoy khimii imeni N. D. Zelinskogo Akademii  
nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy  
Academy of Sciences, USSR)

SUBMITTED: May 16, 1958

Card 2/2

5(4)

AUTHOR:

Mayranovskiy, S. G.

SDV/01-02-1-10/79

TITLE:

Determination of the Height of Polarographic Waves in the Absence of a Limiting Current Plateau (Ob opredelenii vysoty polyarograficheskikh voln pri otsutstvii ploshchadki predel'nogo toka)

PERIODICAL:

Zhurnal fizicheskoy khimii, 1978, Vol 52, Nr 16, pp 2456 - 2460 (USSR)

ABSTRACT:

Two possibilities of determining the height of polarographic waves having no limiting current plateau are mentioned. First, a polarogram wave is defined which is described by the equation

$$E = E_{1/2} - b \lg \frac{i}{i_{\text{lim}} - i} \quad (1), \quad (\text{where } E \text{ denotes the electrode potential, } i \text{ the amperage, } E_{1/2}, b \text{ constants}).$$

In mentioning the papers by Meyman (Ref 3) and V.S. Bagotskiy (Ref 4) it was shown that the majority of the irreversible waves of the reduction of organic compounds in buffered solutions may be described by

Card 1/3

Determination of the Height of Polarographic Waves  
in the Absence of a Limiting Current Plateau

SOV, 76-01-01-05, 19

equations of the type of the equation (1). The method of successive approximation for determining the limiting current divided into four points is described. This method of determination may also be used with polarogram waves described by equations different from (1); e.g. in reversible catalytic hydrogen waves in buffer solution expressed by the equation

$$i_{lim} = \frac{i_1 i_2 (\beta - 1)}{\beta i_1 - i_2} \quad (2).$$

In this second method the value of  $i$  and especially of  $E$  must be determined with great care. The two values are measured potentiometrically with a Lugin electrode. Finally the author thanks A.N. Frumkin, Member, Academy of Sciences, USSR. There are 4 figures and 7 references, 6 of which are Soviet.

ASSOCIATION: Akademiya Nauk SSSR, Institut organicheskoy khimii im.  
N.D. Zelinskogo (AS USSR, Institute of Organic Chemistry  
im. N.D. Zelinskogo)

Card 2/3

Determination of the Height of Polarographic Waves  
in the Absence of a Limiting Current at 100°C

SCV/76-02-10-30,30

SUBMITTED: February 27, 1958

Card 3/3

AUTHOR: Mayranovskiy, S. G.

SOV/20-120-6-36/59

TITLE: Irreversible Catalytic Waves of Hydrogen in Polarography  
(O neobratimyykh kataliticheskikh volnakh vodoroda v polyarografii)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 120, Nr 6,  
pp 1294 - 1297 (USSR)

ABSTRACT: This is an investigation of the catalytic waves produced by quinine. The advantages offered by quinine with respect to other catalysts are listed. The experiments were carried out with a visual polarograph at  $25 \pm 1^\circ$ . The analyses of the waves observed in buffer solutions showed the following: Their lower part is described by the equation  $E = \text{const} - (RT/\alpha nF) \ln i$  in the range where no polarization caused by concentration exists.  $E$  denotes the potential,  $i$  the amperage,  $n$  the number of electrons in the electrochemical state,  $\alpha (=0,6)$  the transport number. The polarograms of the upper part of the wave exhibit a typical rounded maximum. This is a characteristic feature of the irreversible catalytic waves of hydrogen. The logarithmic curves of the amperage for a given catalyst and at a definite pH can be fitted to a straight line. A diagram illustrates the curves of the catalytic waves in a lithium-borate buffer at

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Irreversible Catalytic Waves of Hydrogen in Polarography

SOV/20-120-6-36/59

two concentrations of quinine. The catalytic waves produced by quinine are greater by several orders of magnitude than those produced by pyridine at otherwise identical conditions. An introduction of tetra-ethyl ammonium benzene sulfonate into the solution considerably reduces the irreversible catalytic waves and shifts the positive wave of quinine towards positive potentials. The gradient of the waves is increased and the reduction of the amperage in the upper part of the wave is abolished. The second catalytic wave becomes reversible. The potential of the reversible half-wave of quinine in the buffer solutions of tetra-ethyl ammonium benzene sulfonate is shifted considerably towards positive values if the concentration of the quinine is increased. The author expresses his gratitude to A.N. Frankin, Member, Academy of Sciences, USSR, for repeated discussion of the subject. There are 4 figures and 9 references, 7 of which are Soviet.

Card 2/3

Irreversible Catalytic Waves of Hydrogen in Polarography

SOV/20-120-6-36/59

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk  
SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy, AS USSR)

PRESENTED: February 27, 1958, by A. N. Frumkin, Member, Academy of Sciences,  
USSR

SUBMITTED: February 27, 1958

1. Quinine--Catalytic properties    2. Polarographic analysis  
--Applications    3. Benzene sulfonates--Properties

Card 3/3

5(4)

AUTHORS: ~~Mayranovskiy, S. G., Gonikberg, M. G.,~~ SOV/20-123-2-29/50  
~~Opekunov, A. A.~~

TITLE: Polarography at High Pressures (Polyarografirovaniye pri vysokikh davleniyakh)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 123, Nr 2, pp 312-315 (USSR)

ABSTRACT: The present paper describes the apparatus and methods of polarography (with a mercury electrode) at pressures up to 3,000 kg/cm<sup>2</sup>; it further gives the first results obtained concerning the influence exercised by pressure upon the polarographic behavior of some simple ions. A schematic drawing shows the schematic structure of the measuring device used. It consists essentially of a steel vessel containing oil under pressure. The capillary of the drop-electrode is provided with a small shovel effecting (enforced) stripping-off of the drops, which warrants the maintenance of a constant period of dropping in the case of a variation of the electrode potential. In the course of the experiments carried out by the authors this period did not vary even if pressure was increased from atmospheric pressure to 3,000 kg/cm<sup>2</sup>. A saturated calomel

Card 1/4



## Polarography at High Pressures

SOV/20-123-2-29/50

electrode was used for purposes of comparison. The electrode has a siphon filled with mercury, which served as a stopper. The entire vessel was located in a water bath in which a constant temperature ( $25 \pm 0.1^\circ$ ) was maintained by means of an ultrathermostat. The experiments are described in short. They were carried out with 2 solutions: a) 1.00 mM  $\text{TlCl}$  and 0.75 mM  $\text{HCl}$  in 0.1 n  $\text{KCl}$ ; b) 0.65 mM  $\text{CdSO}_4$ , 0.90 mM  $\text{ZnSO}_4$ , and 0.40 mM  $\text{HCl}$  in 0.1 n  $\text{KCl}$ . The results obtained are shown by a table and 2 diagrams. Investigation of experimental data permits drawing the following conclusions: 1) The potential of the half-wave  $\text{Tl}^+$  and the limiting current practically do not vary if pressure is increased from 1 to 3,000  $\text{kg/cm}^2$ . 2) The potentials of the half periods of  $\text{Cd}^{2+}$  and  $\text{Zn}^{2+}$  shift if pressure is increased towards higher negative values. The limiting current increases somewhat if pressure is increased from 1 to 1,000  $\text{kg/cm}^2$ . 3) The potential of the half-wave of the irreversible discharge of  $\text{H}^+$  shifts if pressure is increased to 3,000  $\text{kg/cm}^2$ , towards lower negative values; the limiting current increases throughout the entire pressure interval investigated. 4) The inclination of the waves of all ions investigated in practice does not depend on pressure.

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Polarography at High Pressures

SOV/20-123-2-29/50

Next, an expression is written down for the variation of the potential of a half-wave for a reversible system. In the case of the dissolution of  $TlCl$  in 0.05 n and 0.2 n solutions of  $KCl$ , the solution expands a little, but at 0.1 n and 0.5 n it contracts somewhat. The decrease of overvoltage of hydrogen under pressure, which was noticed by the authors, is of considerable interest and deserves to be further investigated thoroughly. In conclusion, the influence exercised by pressure on the boundary value of the diffusion current is investigated. There are 3 figures, 1 table, and 7 references, 3 of which are Soviet.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute for Organic Chemistry imeni N. D. Zelinskiy of the Academy of Sciences, USSR)

Card 3/4

MAYRANOVSKII  
ANDERSTEIN, G.

5(4) PHASE I BOOK EXPLOITATION SOV/2216

Sovetskaniye po elektrokhemii. 4th, Moscow, 1956.

Trudy... [sbornik] (Transactions of the Fourth Conference on Electrochemistry; Collection of Articles) Moscow, Izd-vo AN SSSR, 1959. 868 p. Errata slip inserted. 2,500 copies printed. Sponsoring Agency: Akademiyi nauk SSSR. Otdeleniye khimicheskikh nauk.

Editorial Board: A.N. Prumkin (Resp. Ed.) Academician, O.A. Yesin, Professor, S.I. Zhdanov (Resp. Secretary), B.M. Kabanov, Professor, Y.M. Kolotyrkin, Doctor of Chemical Sciences, V.V. Losev, P.D. Lukovitskiy, Professor, Z.A. Solov'yeva, V.V. Stender, Professor, and G.M. Florianovich; Ed. of Publishing House: N.O. Igurov; Tech. Ed.: T.A. Prusakov.

PURPOSE: This book is intended for chemical and electrical engineers, physicists, metallurgists and researchers interested in various aspects of electrochemistry.

CONTENTS: The book contains 127 of the 138 reports presented at the Fourth Conference on Electrochemistry sponsored by the Department of Chemical Sciences and the Institute of Physical Chemistry, Academy of Sciences, USSR. The collection pertains to different branches of electrochemical kinetics, double layer theories and galvanic processes in metal electrodeposition and metal electrode dissolution. Abridged discussions are given at the end of each division. The majority of reports not included here have been published in periodical literature. No personalities are mentioned. References are given at the end of most of the articles.

Maashev, D.M., and A.T. Bagryan (Institute of Physical Chemistry, Academy of Sciences, USSR). Mechanism of the Electrolytic Reduction of Chromic Acid 197

Sinyakova, S.I., and M.I. Olinkina (Institut geokhimi i analiticheskoy khimii AN SSSR ieni V.I. Vernadskogo - Institute of Geochemistry and Analytical Chemistry ieni V.I. Vernadskiy, Academy of Sciences, USSR). Mechanism of the Formation of Catalytic (Kinetic) Waves in Solutions Containing Molybdate Ions and Perchloric Acid 201

Kalvoda, Robert. (Polarographic Institute, Czechoslovakian Academy of Sciences). Methods of Oscillographic Polarography 205

Stromberg, A.O. (Tomskiy politekhnicheskii institut-Tomsk Polytechnic Institute). Determination of the Composition of Discharging Zinc Complexes by the Amalgam Polarography Method 213

Card 9/34

Agar, J.W. (Great Britain). Reduction of Oxygen to Hydrogen Peroxide at a Mercury Electrode in Acid Solutions 219

Mayranovskiy, S.G. (Zavod "Akrikhin"-Institut organicheskoy khimii ieni I.D. Zelinskogo AN SSSR-"Akrikhin" Plant - Institute of Organic Chemistry ieni I.D. Zelinskiy, Academy of Sciences, USSR). Influence of a Chemical Chain Reaction on the Polarographic Behavior of Quaternary Pyridine Salts 223

Knuyants, I.L., and N.S. Vyazankin (Institut elementoorganicheskoy khimii ieni A.T. Vagrameyan, S.P. Balkevskiy, L.I. Antropov, and A.N. Prumkin). Hydrodimerization of  $\alpha, \beta$ -Unsaturated Acid Derivatives 227

Discussion (Z. Ch. Grabovski, A.I. Levin, A.I. Palicheva, A.T. Vagrameyan, A.A. Gaborich, S.P. Balkevskiy, L.I. Antropov, and A.N. Prumkin) 233

Card 10/34

8(2)

AUTHORS: Mayranovskiy, S. G., Silin, N. N.

SOV/32-25-3-53/62

TITLE: The Use of a Potentiometer for Polarographic Investigations  
(Primeneniye potentsiometra dlya polyarograficheskikh iss-  
ledovaniy)

PERIODICAL: Zavodskaya Laboratoriya, 1959, Vol 25, Nr 3, pp 376-377 (USSR)

ABSTRACT: On numerous occasions it is necessary to determine the exact relationship between current intensity and the electrode potential in the case of multi-stage polarograms. The potential of the dropping electrode is measured by means of potentiometers with reference to a testing electrode. A simple method is described by means of which it is rendered possible to increase the measuring range of the most often used potentiometers of the P-4 type. With the help of the new wiring pattern (Fig 1) the measuring range of the potentiometer is trebled so that it becomes also necessary to equip the rheochord as well as the commutator with a new scale. It was observed that in polarizing the dropping electrode it is more advantageous to use a polarograph with a voltage divider rather than a polarograph alone. An apparatus combining both

Card 1/2

SOV/32-25-3-53/62

The Use of a Potentiometer for Polarographic Investigations

features, i.e. voltage divider combined with a potentiometer is in the present case called a "polaropotentiometer". Apparatus of this kind were built by Ye. M. Vasin and Yu. F. Til'. The sketch of a voltage divider (Fig 2) with a description is given, and a few design instructions for such an apparatus are added. There are 2 figures.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR  
(Institute of Organic Chemistry imeni N. D. Zelinskiy of the Academy of Sciences, USSR)

Card 2/2

AUTHORS: Samokhvalov, G. I., Vakulova, L. A.,  
Mayranovskiy, S. G., Luk'yanova, L. V.

SOV/79-29-6-37/72

TITLE: Synthetic Investigations in the Field of the Polyene Compounds  
(Sinteticheskiye issledovaniya v oblasti poliyenovykh soyedineniy).  
XIV. The Direction of Hydration of the Acetylene Bond in a Mole-  
cule Containing a Diene System Conjugated With the Carbonyl Group  
(XIV. Napravleniye gidratatsii atsetilenovoy svyazi v molekule, so-  
derzhashchey diyatsinovuyu sistemu, sopryazhennuyu s karbonil'noy  
gruppoy)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 6,  
pp 1936 - 1945 (USSR)

ABSTRACT: A considerably large group of oxygen-containing carotenoids be-  
longs to the natural polyene pigments. Mixoxanthin, which has a  
vitamin-A effect occurs in marine invertebrates and marine algae.  
Its structure has not yet been investigated in detail. Beside the  
 $\beta$ -ionone ring and the polyene chain, characteristic of the ca-  
rotenoids, it has a cyclic or an aliphatic grouping with a carbonyl  
group in position 4 (formula (I) or (II)). In synthesizing this  
part of the molecule of mixoxanthin the authors tried to bring  
Card 1/3 about the hydration of 3,7-dimethyl octadiene-2,6-in-4-al accord-

Synthetic Investigations in the Field of the Polyene SOV/79-29-6-37/72  
Compounds. XIV. The Direction of Hydration of the Acetylene Bond in a Molecule Containing a Diene System Conjugated With the Carbonyl Group

ing to the scheme 1( (III  $\rightarrow$  (IV)  $\rightarrow$  (V)). In this connection an explanation of the process of hydration is given (Refs 5-8). The synthesis of compound III was carried out according to scheme 2. This hydration was carried out in an aqueous solution of methanol of mercury sulphate with careful heating. The absence of the color reaction with iron chloride in the hydration product indicates the formation of (IV) of (V). From this product a crystalline semicarbazone with a melting point of 152-153° was obtained which according to its composition corresponds to the keto aldehyde  $C_{10}H_{14}O_2$ . For the purpose of comparing the optical and polarographic properties of this compound the keto aldehyde (XI), with already determined position of the carbonyl groups, was synthesized and its semicarbazones at the aldehyde group (XII) were obtained (melting point 197-198°) with a certain position of the semicarbazone residue at the keto group (XIV)(Scheme 3). The comparison of the ultraviolet absorption spectra of the semicarbazone of the keto aldehyde  $C_{10}H_{14}O_2$  (Figs 1,2) as well as the polarographic comparison of the two compounds indicate the same

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structure with respect to the position of the carbonyl groups (Fig<sup>2</sup>3). Thus, 3,7-dimethyl octadiene-2,5-on-4-al (V) in the case of which all compounds contained are conjugated, is formed in the hydration of the triple bond in the molecule (III) containing a diene system conjugated with the carbonyl group. The infrared absorption spectra taken confirm the conclusions drawn. The authors thank N. A. Preobrazhenskiy for the interest he showed in the investigations. There are 5 figures, 1 table, and 18 references, 6 of which are Soviet.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy vitaminnyy institut (All-Union Scientific Research Institute for Vitamins)

SUBMITTED: April 14, 1958

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SOV/76-33-3-30/41

5(4)

AUTHOR:

Mayranovskiy, S. G.

TITLE:

On the Shape of Polarographic Waves During the Catalytic Separation of Hydrogen With a Reversible Electrochemical Stage (O forme polyarograficheskikh voln pri kataliticheskom vydelenii vodoroda s obratimoy elektrokhimicheskoy stadiyey)

PERIODICAL:

Zhurnal fizicheskoy khimii, 1959, Vol 33, Nr 3, pp 691-699 (USSR)

ABSTRACT:

In a previous paper (Ref 1) it was proved that some catalytic processes have a reversible electrochemical stage. In the catalytic separation of hydrogen on the Hg cathode some processes take place near the electrode surface (Refs 1,5,6). The catalyst can have an electrochemically active  $BH^+$  form of acid and an inactive form B.  $BH^+$  is discharged on the cathode to be converted into discharged radicals BH which dimerize and regenerate the catalyst while forming hydrogen at the same time. The catalyst then enters reaction with the proton source  $DH^+$ , is again transformed into  $BH^+$ , and so on. On the basis of this process, the method of calculation according to references 7-9, as well as on the basis of Il'kovich's and Nernst's equation the

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following equation was obtained for the reversible catalytic polarization wave in unbuffered solutions at low current intensities:

$$E = E'_0 - \frac{RT}{F} \ln \frac{i^{5/3}}{i_{lim} - i} \quad (19),$$

where  $i$  = catalytic current,  $i_{lim}$  = its limit value. The value  $i_{lim}$  varies in this case in a linear way with the concentration of the catalyst. The equation

$$E = E''_0 - \frac{RT}{F} \ln \frac{i^{5/3}}{i_{lim}^{3/2} - i^{3/2}} \quad (24)$$

holds for high current intensities, in which  $i_{lim}$  varies in inverse proportion to the catalyst concentration at a ratio of 2:3. The validity of this equation is confirmed by the catalytic waves of hydrogen formed by pyridine in KCl- and LiCl solutions. The differential polarograms were recorded by means of the recorder TsLA of the Energohermet of the system S. B. Tsfasman (Ref 12). Tetraethyl ammonium benzene sulphonate (I) was used as

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a surface-active substance and boric acid solutions as buffers. The constants of the reaction rate of pyridine with water at 25° were computed according to the experimental results (Figs 3,4):

$k_1 = 14 \text{ l/mole}\cdot\text{sec}$  and  $k_2 = 4.6 \cdot 10^{11} \text{ l/mole}\cdot\text{sec}$ , as well as approximately the constant of dimerization rate of the radicals  $\text{C}_6\text{H}_5\text{NH} : k_3 = 6 \cdot 10^{15} \text{ l/mole}\cdot\text{sec}$ . The dimerization of radicals is delayed by the addition of (I), wherein the catalytic wave is represented by the equation  $E = E_{1/2} - \frac{RT}{F} \ln \frac{1}{i_{\text{lim}} - i}$  in buffer-

ed solutions. (I) considerably decreases the contact-catalysis current of the reversible wave in buffered solutions and does not affect its potential  $E_0$ . In conclusion, the author thanks A. N. Frumkin. There are 4 figures and 18 references, 8 of which are Soviet.

ASSOCIATION:  
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Akademiya nauk SSSR, Institut organicheskoy khimii im. N. D. Zelinskogo (Academy of Sciences USSR, Institute of Organic

SOV/76-33-3-30/41  
On the Shape of Polarographic Waves During the Catalytic Separation of Hydrogen  
With a Reversible Electrochemical Stage

Chemistry imeni N. D. Zelinskiy)

SUBMITTED: September 4, 1957

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5(4)

AUTHORS:

Mayranovskiy, S. G., Faynzil'berg,  
A. A., Novikov, S. S., Klimova, V. A.

SOV/20-125-2-31/64

TITLE:

On the Influence of Negative Groups on the  
Electrochemical Reduction of the Bond Carbon - Halogen  
in Organic Compounds (O vliyaniy otritsatel'nykh grupp  
na elektrokhimicheskoye vosstanovleniye svyazi uglerod -  
galoid v organicheskikh soyedineniyakh).  
The Polarographic Behavior of Halide-nitroalkanes  
(Polyarograficheskoye povedeniye galoidnitroalkanov)

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 125, Nr 2,  
pp 351-353 (USSR)

ABSTRACT:

The present paper deals with the influence exercised by the  
nitro groups in  $\alpha$ -position on the easiness of the  
electrochemical reduction of the carbon-halide bond. Even though  
the nitro group itself is easily polarographically reduced,  
its presence (as the experiment shows) facilitates the  
electrochemical breaking of the C-Hal bond to such an extent  
that the wave corresponding to its reduction becomes a wave of  
the reduction of the nitro group. The investigation was carried  
out by means of the recording polarograph of the TsLA

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On the Influence of Negative Groups on the  
Electrochemical Reduction of the Bond Carbon - Halogen  
in Organic Compounds. The Polarographic Behavior of  
Halide-nitroalkanes

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Energochermet (State All-union Trust for the Design, Planning, Assembly and Adjustment of Power Installations and Control- and Measuring Instruments of the Ministry of Ferrous Metallurgy, USSR). Measures for increasing measuring accuracy are discussed in short. A comparison between the polarograms of the halogenized nitro-compounds and the waves of the analogous nitroproducts containing no halide shows that the first wave of nitrohalide alkanes corresponds to the reduction of the C-Hal bond. This is proved by the independence of  $E_{1/2}$  of the first wave of the pH of the solution. The second wave, which corresponds to the reduction of the nitro group, shifts with increasing pH of the solution towards negative potentials. The experimental data corresponding to the reduction of the C-Hal bond are given in a table. In irreducible processes (including the electrochemical reduction of the bond carbon - halide) the potential of the semiwave is only an approximated criterion

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of the easiness of the reduction of the C-Hal-bond. The existence of a nitro group in  $\alpha$ -position facilitates the reduction of the carbon - halide bond considerably, and the influence exercised by the nitro groups also increases with an increase of their number. As expected, bromides are reduced more easily than the corresponding chlorides. Of the iodides only iodotrinitromethane was investigated. Interest is caused by the variation of the product  $\alpha n_a$  of the number  $n_a$  of electrons participating in the

potential-determining stage of the process and the conversion coefficient in some substances in which the polarity of the C-Hal-bond varies. The influence exercised by the structure of the investigated substance upon  $\alpha n_a$  of their waves will be

investigated in the course of a future investigation. There are 1 table and 10 references, 6 of which are Soviet. Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D.

ASSOCIATION:  
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On the Influence of Negative Groups on the  
Electrochemical Reduction of the Bond Carbon - Halogen  
in Organic Compounds. The Polarographic Behavior of  
Halide-nitroalkanes

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Zelinskiy of the Academy of Sciences, USSR)

PRESENTED: November 10, 1958, by A. N. Frumkin, Academician

SUBMITTED: November 10, 1958

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MAYRANOVSKIY, S.G.; BARASHKOVA, E.V.; ALASHEV, F.D.; ZVORYKINA, V.K.

Polarographic study of *E*-oxides of anabasine and *N*-methylanabasine. Izv.AN SSSR Otd.khim.nauk no.5:938-940 My '60.  
(MIRA 13:6)

1. Institut organicheskoy khimii imeni N.D. Zelinskogo Akademii nauk SSSR.

(Anabasine)

S/062/60/000/009/012/021  
B023/B064

AUTHORS:

Belikov, V. M., Mayranovskiy, S. G., Korchemnaya, Ts. B.,  
Novikov, S. S., and Klimova, V. A.

TITLE:

Tautomerism of Nitro Compounds. Communication 1. Study of  
the Mechanism of Tautomeric Conversions of Phenyl  
Nitromethane

PERIODICAL:

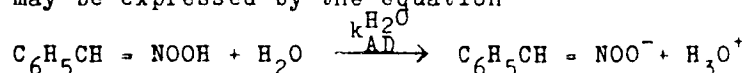
Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh  
nauk, 1960, No. 9, pp. 1675-1680

TEXT: The authors investigated the tautomeric conversions of the nitro  
compounds as thoroughly as possible by the polarographic method. They  
used phenyl nitromethane because its tautomeric conversions proceed  
comparatively slowly. They determined the constant ( $K_N$ ) of the acidic  
dissociation of phenyl nitromethane in water both potentiometrically and  
polarographically, and obtained  $K_N = 1.6 \cdot 10^{-7}$  mole/l. The dissociation  
kinetics of phenyl nitromethane was investigated in buffer solutions at  
pH between 7 and 10. The constants of the rate of dissociation were

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experimentally determined with all components of the buffer solution. The rate of interaction of phenyl nitromethane, with water as standard, is  $k_{ND}^{H_2O} \approx 8 \cdot 10^{-7} \text{ l/mole sec}$ . The kinetics of the transition from the aci- into the nitro form was also studied at pH between 1 and 6. It is found that the rate of isomerization is independent of the hydrogen ion concentration at  $\text{pH} < 2$ , and may be expressed by the equation



The rate of isomerization increases at a further increase of pH. In general, the rate of isomerization is determined by the stage of dissociation of the aci form. The constants were - like in the determination of the dissociation rate of the nitro form - determined with all components of the buffer mixtures. The aci form is a stronger acid than the nitro form. The behavior of the phenyl nitromethane ion in buffer solutions at pH 4-6 showed that in the pH range of from 4 to 4.7, the rate of development of nitro forms is practically independent of the pH of the solution. At a

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further increase of pH, the rate of formation of the nitro form decreases in proportion with the reduction of the acid concentration. In this stage, the rate of formation of the nitro form is determined by the stage of recombination of the anion under the formation of a non-dissociated nitro form. The rates of dissociation and recombination of the nitro form as well as the rate of dissociation of the aci form were experimentally determined. On the basis of the kinetic analysis of tautomeric conversions of phenyl nitromethane it is found that the anion may appear in two forms: as aci anion and as nitro anion. As a result of the kinetic investigations the authors obtained a picture of tautomeric transformations of phenyl nitromethane in aqueous solution for the special case in which only  $H_2O^+$  occurs as a base. See Scheme. Thus, it may be concluded that the duality of the reactivity of the phenyl nitromethane ion is apparently due to the coexistence of ions of two types. The isomerization of these ions proceeds at low rates. These rates determine under certain conditions the direction of the reaction to the one or the other side. This phenomenon may, in the authors' opinion, contribute to clarify the duality of the reactivity

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